424. 円系ノ幾何

松村宗治（台北大）

吾々ハ円系表面ヲ考ヘ $t=const.$, $\tau=const.$ ハ其表面上ノ媒介曲線デァルトスル。

φ ヲ以テ測地線ガ $\tau = const.$ トナス角デァルトセバ

$$(1)\quad \tan\varphi = \frac{\sqrt{(\theta_t\theta_t)(\theta_\tau\theta_\tau)-(\theta_t\theta_\tau)^2}\,d\tau}{(\theta_t\theta_t)\,dt+(\theta_t\theta_\tau)\,d\tau}$$

此ノ $\varphi(t,\tau)$ ガ分ツタナラバ此ノ測地線ハ

$$(2)\quad (\theta_t\theta_t)\sin\varphi\,dt+\left[(\theta_t\theta_\tau)\sin\varphi-\sqrt{(\theta_t\theta_t)(\theta_\tau\theta_\tau)-(\theta_t\theta_\tau)^2}\cos\varphi\right]d\tau = 0$$

ヲ積分スルコトニヨリ其ノ式ガ得ラレル。

尚亦 orthogonalen Grenzkreise ノ式ハ

$$(3)\quad (\theta_t\theta_t)\cos\varphi\,dt + \left[(\theta_t\theta_\tau)\cos\varphi+\sqrt{(\theta_t\theta_t)(\theta_\tau\theta_\tau)-(\theta_t\theta_\tau)^2}\sin\varphi\right]d\tau=0$$

ヲ積分スルコトニヨリ得ラル。

尚亦、

$$(4)\quad -\frac{(\theta_t\theta_t)\frac{\partial\varphi}{\partial\tau}-(\theta_t\theta_\tau)\frac{\partial\varphi}{\partial t}}{\sqrt{(\theta_t\theta_t)(\theta_\tau\theta_\tau)-(\theta_t\theta_\tau)^2}}dt+\frac{(\theta_\tau\theta_\tau)\frac{\partial\varphi}{\partial t}-(\theta_t\theta_\tau)\frac{\partial\varphi}{\partial\tau}}{\sqrt{(\theta_t\theta_t)(\theta_\tau\theta_\tau)-(\theta_t\theta_\tau)^2}}d\tau$$

ハーツノ函数ノ vollständige Differential デァル。

$\varphi = const.$ ガ Isothermensystem ニゾクスルナラバ此ノ曲線ノ orthogsnaltrajektorien ハ

$$(5)\quad \frac{(\theta_t\theta_t)\frac{\partial\varphi}{\partial\tau}-(\theta_t\theta_\tau)\frac{\partial\varphi}{\partial t}}{\sqrt{(\theta_t\theta_t)(\theta_\tau\theta_\tau)-(\theta_t\theta_\tau)^2}}dt-\frac{(\theta_\tau\theta_\tau)\frac{\partial\varphi}{\partial t}-(\theta_t\theta_\tau)\frac{\partial\varphi}{\partial\tau}}{\sqrt{(\theta_t\theta_\tau)(\theta_\tau\theta_\tau)-(\theta_t\theta_\tau)^2}}d\tau=0$$

デァル。

尚ホ亦 $t = const.$, $\tau = const.$ ノ間ノ角ヲ β トセバ

(6) $\cos\delta\beta = \dfrac{(\theta_t\theta_\tau)}{\sqrt{(\theta_t\theta_t)(\theta_\tau\theta_\tau)}}$, $\sin\delta\beta = \dfrac{\sqrt{(\theta_t\theta_t)(\theta_\tau\theta_\tau)-(\theta_t\theta_\tau)^2}}{\sqrt{(\theta_t\theta_t)(\theta_\tau\theta_\tau)}}$

デアル。

(6) カラ $\dfrac{\partial\beta}{\partial t}$, $\dfrac{\partial\beta}{\partial\tau}$ 等ヲ求メ得ベシ。